

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Summary of Telephonic Interview

Applicants kindly thank the Examiner for participating in the telephonic interview of June 2, 2010. During the interview, Applicants argued that although the present claims do not recite “gel”, the polymer electrolyte composition of the present invention is a gel because the polymer electrolyte composition contains a crosslinked material of polyether binary copolymer and a large amount of electrolyte solution. Applicants also argued that the polymer electrolyte composition in Kohjiya is not a gel, because the cast mixed solution is dried, and the dried film contains either none or a very small amount of an electrolyte solution or organic solvent.

The Examiner indicated that the reference (column 4, lines 57-59) refers to “sufficient drying to obtain a film”. The Examiner took the position that “sufficient drying” allows room for interpretation, and does not necessarily exclude the presence of some solvent. The Examiner further asserted that a film may be a gel.

Applicants discussed the potential amendment of claim 1 to incorporate the amount of electrolyte solution. The Examiner indicated that such an amendment would likely be helpful in advancing prosecution of the above-identified application.

Applicants have amended the claims in the manner proposed during the interview, and provide arguments in this regard.

Claim Amendments

Claim 1 has been amended to recite that the amount of the electrolyte solution is within the range of 100 to 10,000 parts by weight, based on 100 parts by weight of the polyether binary copolymer, based on page 13, lines 5-9 of the specification.

Discussion of Advisory Action

In the Advisory Action, the Examiner indicates that Applicants’ claims do not specifically recite a gel, and that the solid electrolyte of Kohjiya is inherently in gel form.

Applicants' Arguments

In the final rejection, claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kohjiya et al. (US 5,837,157) in view of Miura et al. (US 6,159,389), and claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kohjiya et al. in view of Miura et al.

In the response filed April 27, 2010, Applicants argued that both the Kohjiya and Miura references are related to a solid electrolyte, while the presently claimed invention relates to a gel electrolyte, which comprises an electrolyte solution.

As mentioned above, the Examiner takes the position that (1) Applicants' claims do not recite a gel, and (2) that the film of Kohjiya may contain some solvent, and may be a gel.

Applicants respectfully disagree.

As discussed in the telephonic interview of June 2, 2010, even though the present claims do not specifically recite the term “gel”, the polymer electrolyte composition of Applicants’ claims **is a gel**, because the polymer electrolyte composition contains a crosslinked material of polyether binary copolymer and a large amount of electrolyte solution. Claim 1 has been amended to recite the particular amount of electrolyte solution, i.e., 100 to 10,000 parts by weight, based on 100 parts by weight of the polyether binary copolymer.

Dr. Miura, who is one of the inventors of both the Kohjiya and Miura references, as well as the present application, indicates that **the polymer electrolyte composition disclosed in the cited patents is not a gel**.

In particular, the cast mixed solution (containing copolymer dissolved in tetrahydrofuran, then mixed with a tetrahydrofuran solution of lithium perchloride) is dried in the Kohjiya reference (see Example 1, column 4, lines 57-59), and the dried film (see column 4, line 59) contains none or a very small amount of an electrolyte solution or an organic solvent. On the contrary, the electrolyte composition of Applicants’ claims contains a large amount of an electrolyte solution, i.e., 100 to 10,000 parts by weight, based on 100 parts by weight of the polyether binary copolymer. Since Kohjiya fails to teach this large amount of electrolyte solution, the composition of the reference is not a gel, and is therefore distinct from Applicants’ claimed composition.

A similar argument is applicable with regard to the Miura reference. Specifically, the solid polymer electrolyte of Miura contains none, or a very small amount of an electrolyte solution or an organic solvent. For example, in Example 1 of Miura (column 13, line 64), the mixture solution (comprising copolymer and crosslinking agent dissolved in acetonitrile, and then mixed with lithium perchlorate) is sufficiently dried to give the electrolyte polymer composition which contains none, or a very small amount of an electrolyte solution or an organic solvent. As discussed above, amended claim 1 requires that the electrolyte solution is present in a range of 100 to 10,000 parts by weight, based on 100 parts by weight of the polyether binary copolymer. Since Miura fails to teach this large amount of electrolyte solution, the composition of the reference is not a gel, and is therefore distinct from Applicants' claimed composition.

For these reasons, the invention of the pending claims is clearly patentable over the cited references. Withdrawal of the rejections is respectfully requested.

Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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